



JANUARY 2024

Storage Location Reimagined: A Case Study

Point A to Point B: A Better Way.

Executive Summary

Warehouse relocation analysis uncovers optimization through consolidation

What

Warehouse relocation analysis

When

Six months of data
January - June 2022

Findings

Following a strategic collaboration with NT Logistics, our customer, a leading food and beverage manufacturer, embarked on an initiative to enhance their warehouse operations. The analysis, based on six months of "as shipped" data, sought to evaluate the efficiency of the current distribution network. Key findings, which will be detailed in subsequent sections, revealed a surprising opportunity for optimization—consolidating all operations into one central location, Auburn, NY. This proposed strategy, focusing on Freight to Customer (FTC) and Freight to Storage (FTS) optimization, aims to minimize operational complexities and enhance overall efficiency.



**6% increase
in total lbs**

Conclusion

In consolidating the warehouses into one that is large enough to accommodate all SKUs, we would see an annual increase in cost of \$325k. However, given the tradeoffs of recouping the additional four warehouse expenses, we believe that this approach would lead to the most efficient operation.

The Background

Scenario and Methodology
Behind the Case Study



Scenario

Our customer, a major food and beverage manufacturer, partnered with NT Logistics in an initiative to optimize their warehouse operations. Originating from a manufacturing plant in Fredonia, NY, our customer faced distribution challenges with over 100 destinations and operated five storage facilities in Auburn, NY, Pittsburgh, PA, Cleveland, OH, Ross Township, PA, and Lake City, PA. The analysis, leveraging six months of "as shipped" data, aimed to assess the current state of the distribution network and identify opportunities for improvement.

The Methodology

How the Case Study was Defined

The facilities served both Customer Pick Up (CPU) and Freight to Customer (FTC) requirements. The FTC component of outbound products was largely overseen by NT Logistics. These shipments, presented "As Tendered," provided a benchmark to determine the current cost of the existing network.

This methodology involved a multi-step assessment:

- 1. Current Distribution Network Costs:** Determined costs related to the existing distribution network, considering static destinations and assessing the impacts of moving the origin to Auburn, NY. Utilized "As Shipped" lane pairs for this analysis.
- 2. New Lane Pair Costs:** Computed costs for new lane pairs, matching Auburn as the origin with the original destination. Utilized current destination rates and fuel surcharge averages from the first two quarters.
- 3. Cost Components:** Factored in two critical cost components—Freight to Storage (FTS) and Storage / Handling charges.
- 4. Total Landed Cost Calculation:** Calculated total landed cost using the formula:

$$MFG + x_1 + y + x_2 = TotalLandedCost$$

where

x_1 = FTS,

y = WarehouseCharges,

x_2 = FTC.

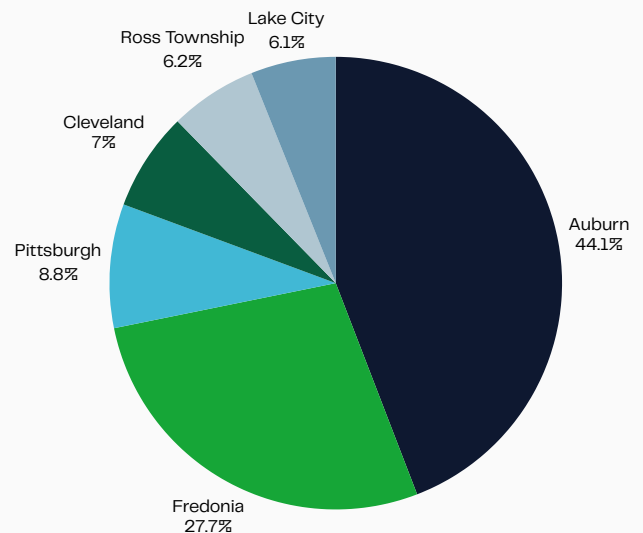


Current Strategy

Six months of data
January - June 2022

When NT Logistics was provided the data to analyze, our customers operated five warehouses in addition to their manufacturing facility.

Origin	Trucks	% Total Trucks
Auburn	509	44.11%
Fredonia	319	27.64%
Pittsburgh	102	8.84%
Cleveland	81	7.02%
Ross Twp	72	6.24%
Lake City	70	6.07%
TOTAL	1,154	100%



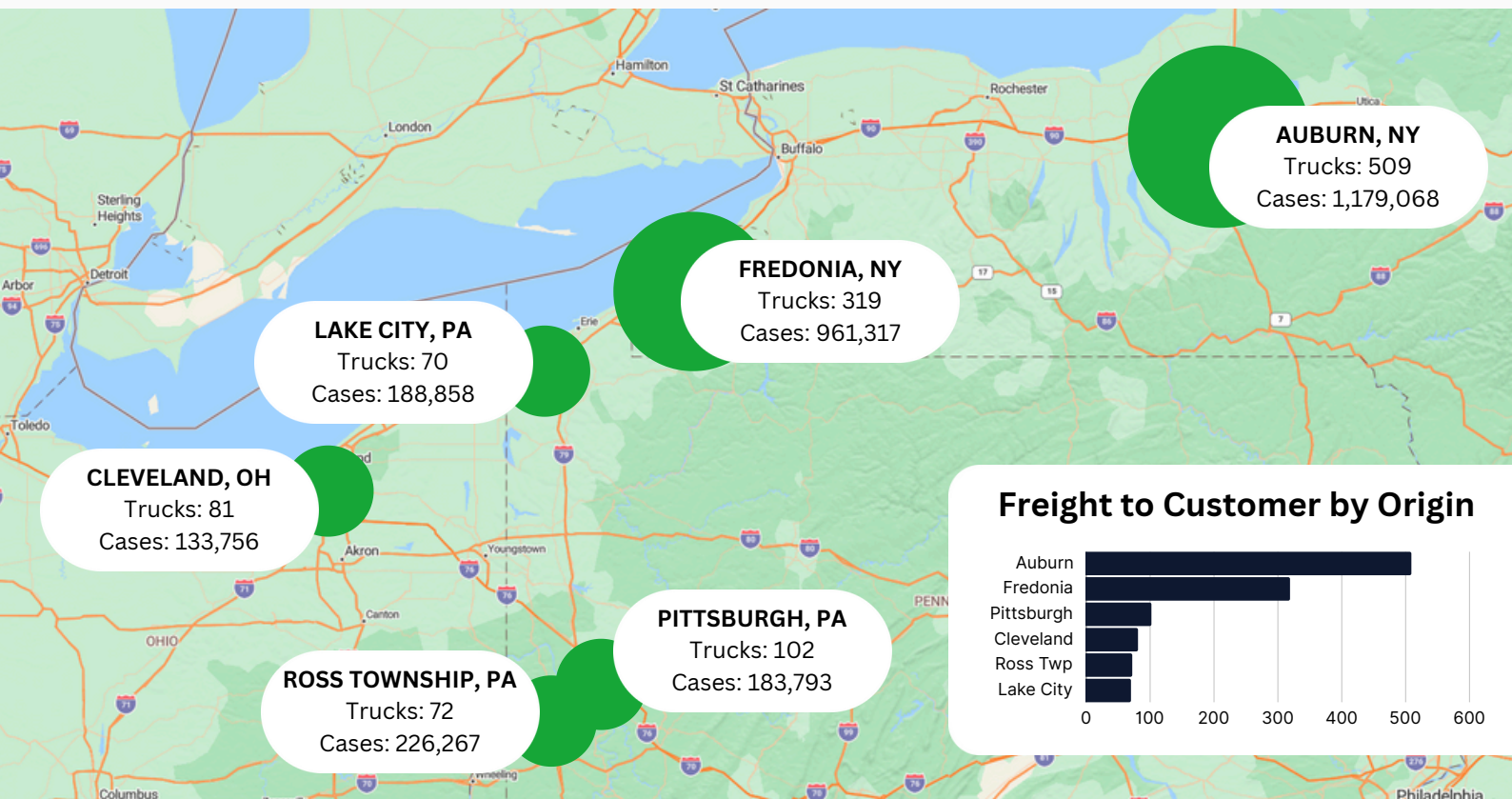
Origin	Trucks	% Total Trucks
Fredonia	319	27.64%
All Other Locations	834	72.36%

The Data

“As shipped” analysis for Q1 and Q2 2022 for a food and beverage manufacturer in the Northeast United States

All Freight to Customer

Origin	Trucks	Cases	lbs.	Routed Miles	Total Charges
Auburn	509	1,179,068	17,959,732	304,848	\$880,932.76
Fredonia	319	961,317	11,026,470	285,075	\$733,836.20
Pittsburgh	102	183,793	3,134,980	70,161	\$185,162.68
Cleveland	81	133,756	2,146,541	102,963	\$207,704.48
Ross Twp	72	226,267	2,804,358	75,344	\$191,780.10
Lake City	70	188,858	2,420,411	77,096	\$199,517.63
TOTAL	1,154	2,873,059	39,492,492	915,487	\$2,398,933.85



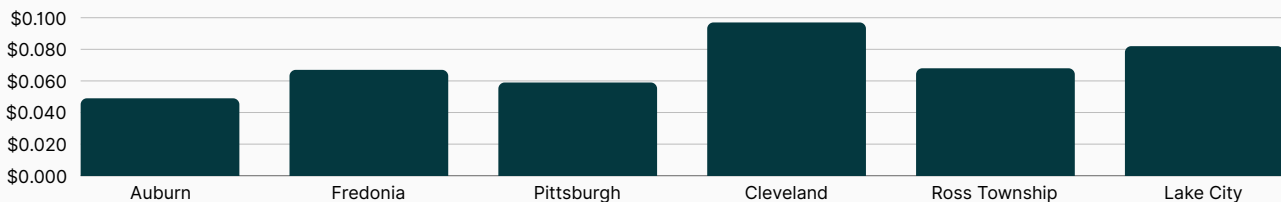
The Data

“As shipped” analysis for Q1 and Q2 2022 for a food and beverage manufacturer in the Northeast United States

Average LOH

Origin	Avg LOH	Cost / Pound	Cost / Case
Auburn	599	\$0.049	\$0.747
Fredonia	894	\$0.067	\$0.763
Pittsburgh	688	\$0.059	\$1.007
Cleveland	1,271	\$0.097	\$1.553
Ross Twp	1,046	\$0.068	\$0.848
Erie	1,101	\$0.082	\$1.056
TOTAL	793	\$0.061	\$0.835

Cost / Pound



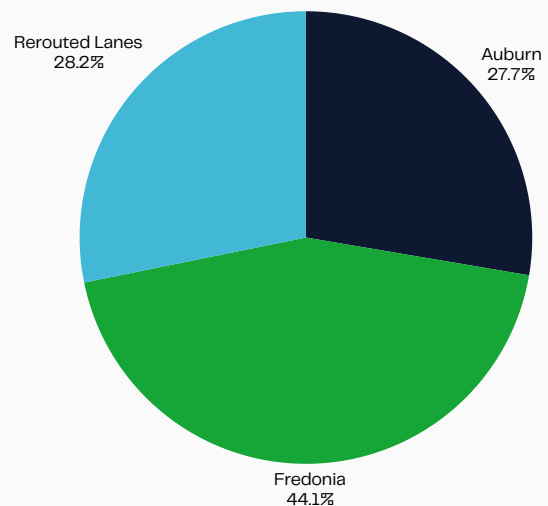
Proposed Strategy

Consolidate storage facilities into one location

After analyzing the data, NT Logistics' recommendation was to consolidate the storage facilities into one location, Auburn, NY. This would result in a \$325k annualized increase in cost -- a 5.7 cents per case and 0.004 cents per pound uptick.

This strategic decision is expected to bring about significant advantages, especially in making Freight to Customer (FTC) and Freight to Storage (FTS) processes run smoother. Removing complexities tied to handling multiple storage spots in different places, the plan we proposed aimed to set up a more efficient and flexible distribution network.

Origin	Trucks	% Total Trucks
Auburn	319	27.67%
Fredonia	509	44.15%
Rerouted Lanes	325	28.19%
TOTAL	1,153	100%



Potential Advantages

- Decrease in warehouse expenses
- Ease of pulling doubles into the Auburn facility could lead to cost savings
- Extended warehouse hours, linked to the 60% increase in volume, could also offer additional benefits in terms of heightened service levels
- SKUs are consolidated in one location

Potential Disadvantages

- Approximately \$500/load needs to breakeven or to overcome the extended LOH
- Impact on CPU should be considered

Proposed Strategy

Consolidate storage facilities into one location

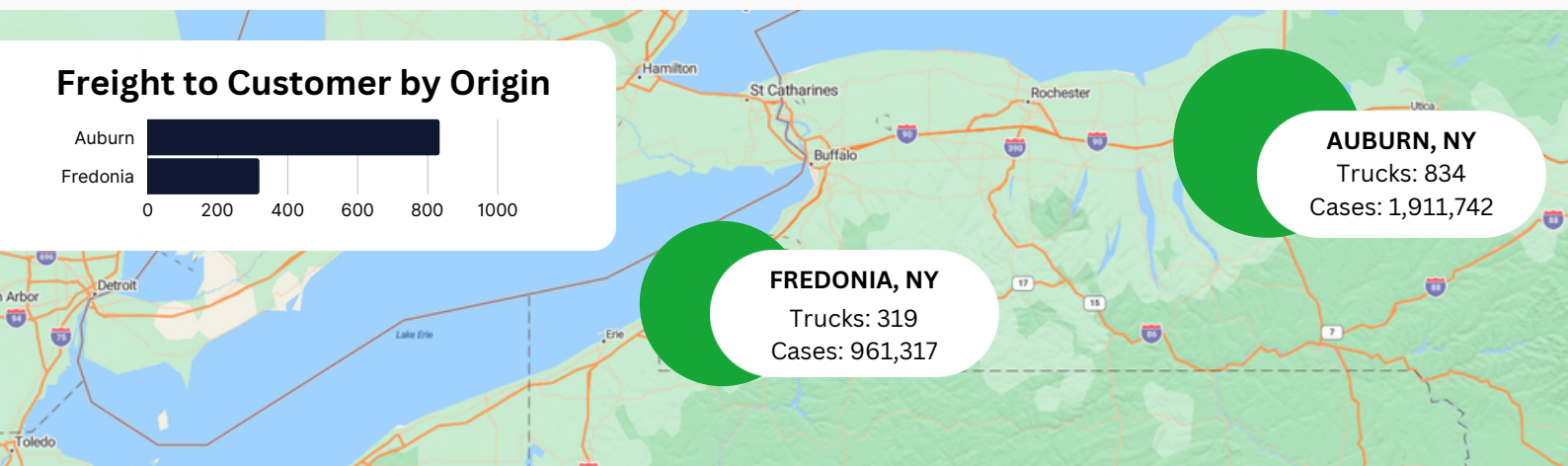
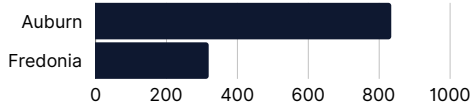
All Freight to Customer

Origin	Trucks	Cases	Ibs.	Routed Miles	Total Charges
Auburn	319	1,179,068	17,959,732	304,848	\$880,932.76
Fredonia	509	961,317	11,026,470	285,075	\$733,836.20
Rerouted Lanes	325	732,674	10,506,290	395,950	\$947,588.61
TOTAL	1,153	2,873,059	39,492,492	985,873	\$2,562,357.57

Pounds by Location

Origin	Trucks	Cases	Ibs.	Routed Miles	Total Charges
Auburn	319	1,179,068	17,959,732	304,848	\$880,932.76
Fredonia	509	961,317	11,026,470	285,075	\$733,836.20
Rerouted Lanes	325	732,674	10,506,290	395,950	\$947,588.61
TOTAL	1,153	2,873,059	39,492,492	985,873	\$2,562,357.57

Freight to Customer by Origin

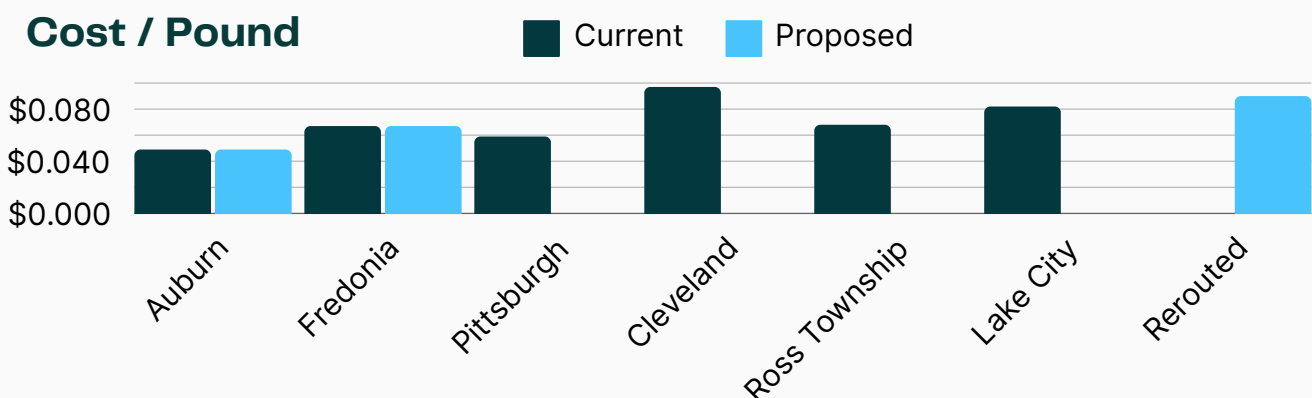


Current vs Proposed

Consolidate storage facilities into one location

Cost / Pound

Totals	Current	Proposed	Amount Difference	% Difference	+ / -
Routed Miles	915,487	985,873	70,386	7.69%	+
Linehaul Charges	\$1,776,038.99	\$1,913,012.22	\$136,973.23	7.71%	+
Fuel Surcharge	\$309,603.77	\$336,054.26	\$26,450.49	8.54%	+
Total Surcharge	\$ 2,398,933.85	\$2,562,357.57	\$163,423.72	6.81%	+
Cost / Pound	\$0.061	\$0.065	\$0.0041	6.81%	+
Cost / Pound (Net Fuel)	\$0.053	\$0.056	\$0.0035	6.56%	+
Cost / Case	\$0.835	\$0.892	\$0.0569	6.81%	+
Cost / Case (Net Fuel)	\$0.727	\$0.775	\$0.0477	6.56%	+



Conclusion

Given the tremendous savings in consolidating warehouses and the benefit of consolidating all SKUs in one warehouse, we concluded that the \$325k annualized increase in cost would be more than offset, leading to optimized operational efficiency for the food and beverage manufacturer.

About NT Logistics

Arranging transportation is our core competency, but it's just the beginning. Our team is dedicated to continuously improving processes, leveraging technology, and developing strategies to save you time and money while enhancing service quality. We collaborate closely with your organization, providing tailored solutions, maintaining open communication, and sharing our expertise to optimize your supply chain operations.

